

## 4. DISCUSSION

### Conclusions based on objectives

Only the first four objectives were acted upon as no oil was detected along the surveyed shoreline from Darwin to Broome.

### Marine megafauna

**Objective:** *To quantify the presence of megafauna in the subject area pre-impact in order to determine the level of potential exposure to oil.*

Marine megafauna sightings were common along almost the entire shoreline. All identified species are highly vulnerable to oil spill damage should oil come in direct contact with the animal. In addition, a number of these species rely on seagrass and coral reef communities as foraging ground (e.g. dugong, sea turtles), enhancing the risk of impact from oil spill to these species. Others depend on coastal fisheries as food sources (dolphins, sharks). Oil damage to mangrove communities will therefore have further consequences for these species due to the utilization of mangrove systems by juvenile fish as nursery grounds (Nagelkerken *et al* 2000). Reduced numbers of high quality fish prey has been noted following past oil spills (Irons *et al* 2000). It is highly likely oil spill damage to mangrove communities along this coastline would result in a reduction of forage fish abundance long term.

The greatest concentrations of megafauna (~60% observed) were recorded in the area from Cape Londonderry to Admiralty Gulf (subregions #8 & #9). The majority (67%) of megafauna sightings were of turtles. Additional observations of beaches with recent turtle tracks were also recorded. This data provides a potentially valuable contribution to our knowledge of turtle nesting activity along this coastline. There were signs of greater nesting activity shown with turtle tracks in York Sound (subregion #11). For enhanced quantification of sea turtle nesting activity, shoreline imagery provided in the digital database can be further assessed.

Frequency and types of observed fauna varied considerably from one section of coastline to the next. While some of this variation may be attributed to biotic preferences, a significant amount may be due to weather conditions influencing turbidity, time of day affecting light, tidal condition affecting exposure, as well as currents and rain squalls. The latter notably affected our survey track and timing on several occasions. Tidal flux at the mouths of large river systems commonly resulted in high turbidity, and hence decreased visibility. These conditions can only have resulted in underrepresentation of fauna counts during surveys, not detracting from the extreme

sensitivity to marine fauna identified in the region to impact from oil residue reaching the coastal waters and shore.

### **Habitats present in shoreline ecological assessment**

**Objective:** *To quantify the presence and extent of communities or habitats (mangroves, other tidal wetlands, and other shoreline types) in the subject area before impact by oil in order to determine the level of potential exposure to oil.*

Tropical and subtropical mangrove habitats are considered as particularly vulnerable to damage from petrochemicals (Duke 1991, 1992; Duke & Pinzon 91a, 91b; Garrity and Levings 1993, Duke et al. 1993; Proffitt et al. 1995; Duke et al. 1997, 1998a, 1998b, 1999a, 1999b; Duke & Shulkin 1999; Duke et al. 2000; Duke & Burns 2003). Intertidal habitats present along the shoreline between Darwin and Broome included vast mangrove habitats, growing on 3214 km coast; constituting 63% of the surveyed region. The OzCoast database (2009) identifies 9440.63 km<sup>2</sup> of tidal wetland habitat within the Montara well release region, calculated as 1.85 km<sup>2</sup> of tidal wetland for every kilometer of coast surveyed during the present project. Saltmarsh and salt flats were also common along the intertidal region, spanning more than 1215 and 1317 km respectively. The extent of intertidal wetland varied between the 16 surveyed regions. Measures for each region of tidal wetland quantifies coastal shorelines at greatest risk, varying between 0.04 and 10.88 km<sup>2</sup> of tidal wetland/km of shoreline. Three coastal areas are at greatest risk in having disproportionately vast tidal wetland areas, including: Joseph Bonaparte Gulf (subregion #5), Cambridge Gulf (subregion #6) and King Sound (subregion #14).

Vulnerability of tidal wetland habitats to damage from oil spills is also associated with the biodiversity of mangrove species. In the survey region, the range of mangrove species are progressively limited to the west. Species endpoint occurrences are recognized as limits of existence where such species are at high risk from further disturbance (Duke et al. 2007), like an oil spill (Duke et al. 2000). Respective coastal areas at greatest risk in having western species limits, include: the area west of Darwin (subregions #1 & #2), and the area around King Sound (subregions #14 & #15).

The extent of intertidal habitats vulnerable to oil spill damage within the Montara well release region is extreme. These intertidal communities are essential to the maintenance healthy fisheries (Nagelkerken *et al* 2000; Duke et al. 2007). The quantification of shoreline habitats provided in this report highlights the vulnerability of the coastline to oil pollution.

### **Habitat condition in shoreline ecological assessment**

**Objective.** *To record pre-existing (i.e. pre-impact) condition of communities or habitats in the subject area.*

Digital imagery collected during the November 2009 survey provides a record of almost the complete shoreline habitat between Darwin and Broome. This dataset is a permanent record of current ecosystem health and habitat condition of the shoreline between Darwin (NT) and Broome (WA). Quantification of habitat condition was not completed during the present study. However the permanent digital imagery record of current habitat condition will allow future comparisons of ecosystem health and condition should the need arise. If impacted, shoreline biota and habitats can continue to be monitored to assess the extent and duration of any damage.

### **Exposure to oil in shoreline ecological assessment**

**Objective:** *To determine any exposure of waters, sediments, fauna or flora to oil and if detected, to quantify the level of exposure.*

No identifiable oil slicks or contamination were observed during the November 2009 shoreline surveys of Darwin to Broome. Survey methodology proved excellent for oil detection, as the utilization of a helicopter for aerial surveys allowed close inspection of any notable flotsam or debris suspected of being hydrocarbon in origin. It was possible to collect samples of any bloom-like debris directly from the helicopter. Overall, the operational logistics utilized in this study proved essential for the expeditious, effective and efficient conduct of aerial surveys aimed to both detect oil residues as well as comprehensively survey shoreline habitats.

## **5. CONCLUSIONS & RECOMMENDATIONS**

The area between Darwin and Broome remains one of the most isolated areas of Australia, and data for this region is therefore scarce. The present study quantifies habitat types in this region in an accessible manner as a series of detailed maps for 16 subregions of the surveyed shoreline. A comprehensive digital library of georeferenced photographic imagery complements the report. Together, report and digital library present the most comprehensive database of habitat type and condition for this area to date. This data will provide valuable information to gauge future changes to the environment in this remote area of Australia.

Data collected in the present project has identified the shoreline between Darwin and Broome to be at high risk of damage should oil reach the coast. Intertidal wetlands are common throughout the region, with 1.88 km<sup>2</sup> of intertidal wetland present for every kilometre of shoreline surveyed during the present project. Intertidal wetlands are sensitive ecosystems and any damage from oil in these systems will take years to repair. Native marine megafauna observed in the region are also at risk of oil damage both directly and indirectly through the impact of oil on foraging habitats and on environments essential to the reproductive success of prey species.

## 6. ACKNOWLEDGEMENTS

We are grateful to PTTEPAA, John Wardrop, and DEWHA for the opportunity to conduct baseline aerial and ground surveys. The baseline information gathered has immense and lasting value for the better management of this remote region of Australia.

We would like to thank David Tomlinson and the crew of the *Flamingo Bay*. It was a pleasure to work with you all.

We also thank Karen Edyvane and Carol Palmer (NT Government) for their assistance with this survey, and in particular for megafauna surveys.

The Nikon camera was loaned from Prof Justin Marshall's group at UQ for use with this project.

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## APPENDIX

### Mapping Metadata

#### ***Darwin (NT) to Broome (WA) coastline habitat survey 2009***

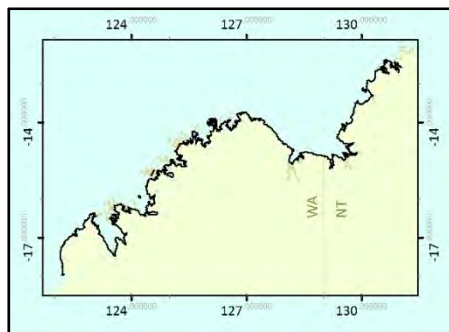
*File name:* "CoastHabitat\_DarwinBroome"

#### Description

##### *Abstract:*

Darwin (NT) to Broome (WA) coastline habitat survey 2009 was created from analysed video clip images, collected from a helicopter during a nine-day period from 9<sup>th</sup> to 18<sup>th</sup> November 2009. It shows coastal habitat types and physical attributes of the coastline between Darwin in the Northern Territory and Broome in Western Australia.

##### *Spatial domain:*



##### *Geographic extent:*

Coastline between Darwin, Northern Territory (130.8453°E 12.4693°S) and Broome, Western Australia (122.2462°E 17.9502°S).

#### Data currency

*Beginning date:* 9<sup>th</sup> November 2009

*Ending date:* 18<sup>th</sup> November 2009

#### Dataset status

*Progress:* Complete

*Maintenance and update frequency:* Not updated

#### Access

*Stored data format:* DIGITAL - ArcView shape file, GCS WGS84

### Data quality

#### *Lineage:*

Data were created from aerial video clips, analysed every 2<sup>nd</sup> frame (every 2 seconds of video footage). Coordinates were identified for frames where one or more assessed categories changed by aligning GPS track data. These data points were shifted perpendicularly to coastline to reflect approximate view of coast from helicopter. Coastline (digitised from satellite imagery) was split at each data point and assigned the corresponding attributes.

#### *Positional accuracy:*

Estimated at  $\pm 500\text{m}$  based on location of water reach data points as a check category against creeks/channels visible in underlying satellite imagery. Also, positional accuracy is dependent on the GPS accuracy at the location/time of data collection.

#### *Attribute accuracy:*

To be assessed.

#### *Completeness:*

Complete for region surveyed.

### Contact information

*Contact organisation:* Centre for Marine Studies, University of Queensland

*Mail address:* Level 8, Gehrmann Building, University of Queensland, St Lucia, QLD 4072

### Metadata information

*Metadata date:* 2010-04-13

# Additional Metadata

## Attributes:

Attribute abbreviation	Attribute name	Description	Broad classification
CL	Cliff	1 (present), 0 (absent)	Physical – rocky
R	Rocky	1 (present), 0 (absent)	
HRS	High energy rocky shore	1 (present), 0 (absent)	
LRS	Low energy rocky shore	1 (present), 0 (absent)	
RW	Rock wall	1 (present), 0 (absent)	
WCP	Wave Cut Platform	1 (present), 0 (absent)	
StB	Stony beach	1 (present), 0 (absent)	Physical – beach
SB	Sandy beach	1 (present), 0 (absent)	
Sand	Sand flat	1 (present), 0 (absent)	Physical – flats
MF	Mudflat	1 (present), 0 (absent)	
SF	Salt flat	1 (present), 0 (absent)	
ChR	Chenier Ridge	1 (present), 0 (absent)	Physical – dunes
ED	Exposed Dune	1 (present), 0 (absent)	
VD	Vegetated dune	1 (present), 0 (absent)	
M	Mangrove	1 (present), 0 (absent)	Vegetated habitat – mangrove
SM	Saltmarsh	1 (present), 0 (absent)	Vegetated habitat – saltmarsh
CR	Fringing coral	1 (present), 0 (absent)	Vegetated habitat – fringing coral
sG	Seagrass verge	1 (present), 0 (absent)	Vegetated habitat – seagrass verge
S	Swamp	1 (present), 0 (absent)	Vegetated habitat – other wetland
W	Wetland	1 (present), 0 (absent)	
CW	Coastal Woodland	1 (present), 0 (absent)	Vegetated habitat – coastal woodland
G	Grassland	1 (present), 0 (absent)	Vegetated habitat – grassland
A	Human modified	1 (present), 0 (absent)	Human modified
H2O	Water reach	1 (present), 0 (absent)	Water reach
Dep	Deposition	1 (present), 0 (absent)	Deposition
Erod	Erosion	1 (present), 0 (absent)	Erosion
Stab	Stable	1 (present), 0 (absent)	Stable
Scum	Scum	1 (present), 0 (absent)	Scum
Oil	Oil	1 (present), 0 (absent)	Oil

Region_	Coast section name	Name of coast section
Coast_ID	Coast section number	ID number of coast section
Map	UTM grid	UTM grid used for projecting data
Date_	Survey date	Date aerial survey of coast was undertaken
Clip	Video clip analysed	Video clip analysed
Clip_image	Frame number	Frame number for first analysed image in section of unchanged coast
Lat	Original latitude	Original coordinate of data point along helicopter route
Long	Original longitude	Original coordinate of data point along helicopter route
ET_Lat	Shifted latitude	Coordinate of data point after shifted to coastline, perpendicularly to helicopter track
ET_Long	Shifted longitude	Coordinate of data point after shifted to coastline, perpendicularly to helicopter track

## ***Observations of marine megafauna and estuary mouths during coastline survey from Darwin to Broome***

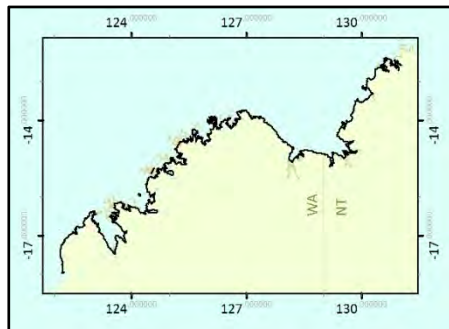
*File name:* "MarineFauna\_Estuaries"

### Description

#### *Abstract:*

Point locations describing observations made of marine megafauna from helicopter surveys undertaken from Darwin to Broome during the period 9<sup>th</sup> – 18<sup>th</sup> November 2009. Also contains point locations describing observations of estuary mouths made during the same surveys.

#### *Spatial domain:*



#### *Geographic extent:*

Coastline between Darwin, Northern Territory (130.8453°E 12.4693°S) and Broome, Western Australia (122.2462°E 17.9502°S).

### Data currency

*Beginning date:* 9<sup>th</sup> November 2009

*Ending date:* 18<sup>th</sup> November 2009

### Dataset status

*Progress:* Mostly complete – missing observational data collected on the afternoon survey of 16<sup>th</sup> November 2009.

*Maintenance and update frequency:* Not updated

### Access

*Stored data format:* DIGITAL - ArcView shape file, GCS WGS84

### Data quality

#### *Lineage:*

Data were created

#### *Positional accuracy:*

For marine megafauna observations, positional accuracy is variable, dependent on the accuracy of the GPS at the time of collection. For estuary mouths, locations shown are the position of the helicopter when the estuary mouth was viewed perpendicularly out the left-hand side. Positional accuracy is dependent on GPS accuracy at the time/location of data collection.

#### *Attribute accuracy:*

Broad categorisation of marine megafauna is good, while some error may be present in identification of observations to species/genus level.

#### *Completeness:*

Mostly complete – missing observational data collected on the afternoon survey of 16<sup>th</sup> November 2009.

### Contact information

*Contact organisation:* Centre for Marine Studies, University of Queensland

*Mail address:* Level 8, Gehrmann Building, University of Queensland, St Lucia, QLD 4072

### Metadata information

*Metadata date:* 2010-04-13

### Additional Metadata

<b>Attribute abbreviation</b>	<b>Attribute name and description (where required)</b>
Date_	Date observation made
Time	Time observation made
Lat	Coordinates of observation location
Long	Coordinates of observation location
Notes_abbr	Abbreviated notes made during helicopter survey describing observation (e.g. sea turtle or estuary mouth).
Genus_Spec	Genus/Species level identification of fauna observed – where possible to identify
Number_see	Number of animals/estuary mouths observed at specified location (number format)
Obs_notes	Qualitative statements regarding number of animals observed (e.g. “more than” indicates at least the specified number were observed).

# Marine megafauna observations

Date	Lat	Long	Common name	Genus/Species	Number
9/11/2009	S12.58942268	E130.56356502	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	1
9/11/2009	S12.47827998	E130.58251709	Dugong	<i>Dugong dugong</i>	1
9/11/2009	S12.47573549	E130.58014819	Ray	Superorder Batoidea	2
9/11/2009	S12.50059529	E130.58490794	Ray	Superorder Batoidea	2
9/11/2009	S12.45978909	E130.57370804	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
9/11/2009	S12.52943088	E130.57288486	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
9/11/2009	S12.58462219	E130.56227873	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
10/11/2009	S13.21531716	E130.07470141	Dugong	<i>Dugong dugong</i>	2
10/11/2009	S13.50825286	E129.8531393	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
10/11/2009	S13.21531716	E130.07470141	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
12/11/2009	S14 45.553	E128 43.497	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	5
12/11/2009	S14 52.516	E128 27.054	Dugong	<i>Dugong dugong</i>	1
12/11/2009	S14 37.127	E128 20.897	Dugong	<i>Dugong dugong</i>	1
12/11/2009	S14 35.860	E128 03.258	Dugong	<i>Dugong dugong</i>	3
12/11/2009	S14 35.859	E128 03.257	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	~ 4
12/11/2009	S14 46.698	E128 36.672	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
12/11/2009	S14 32.509	E127 58.305	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
12/11/2009	S14 38.203	E128 24.682	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
12/11/2009	S14 39.903	E128 30.097	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
12/11/2009	S14 42.611	E128 09.938	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
12/11/2009	S14 35.248	E128 08.222	Unidentified dolphin species	Family Delphinidae	1
12/11/2009	S14 37.710	E128 22.938	Unidentified dolphin species	Family Delphinidae	1
12/11/2009	S14 37.729	E128 23.002	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	S13 44.907	E127 01.934	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 47.097	E127 03.246	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 54.903	E127 13.783	Dugong	<i>Dugong dugong</i>	2
14/11/2009	S13 54.133	E127 14.144	Dugong	<i>Dugong dugong</i>	2
14/11/2009	S13 54.073	E127 15.445	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 56.153	E127 19.668	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 55.700	E127 22.794	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 57.388	E127 25.968	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 56.753	E127 26.019	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 57.115	E127 26.061	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S14 14.392	E127 45.718	Dugong	<i>Dugong dugong</i>	1

14/11/2009	S14 25.789	E127 49.696	Dugong	<i>Dugong dugong</i>	2
14/11/2009	S14 25.609	E127 49.778	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S14 26.610	E127 52.685	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S14 29.210	E127 56.165	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S14 32.577	E127 56.651	Dugong	<i>Dugong dugong</i>	1
14/11/2009	S13 56.569	E127 12.256	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	3
14/11/2009	S14 15.671	E127 43.202	Ray	Superorder Batoidea	11
14/11/2009	S13 48.175	E127 02.794	Saltwater crocodile	<i>Crocodylus porosus</i>	1
14/11/2009	S14 18.547	E127 46.030	Saltwater crocodile	<i>Crocodylus porosus</i>	1
14/11/2009	S13 44.376	E126 57.988	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 44.732	E126 58.102	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 44.392	E126 58.321	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 45.060	E126 58.531	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 45.111	E126 58.958	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 44.695	E127 00.165	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 46.348	E127 00.324	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 47.434	E127 01.332	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 48.043	E127 01.961	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 48.258	E127 02.648	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 48.479	E127 03.249	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 48.824	E127 03.289	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 45.263	E127 03.571	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 45.531	E127 04.255	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 45.600	E127 04.443	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 52.384	E127 04.598	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 45.772	E127 04.900	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 50.308	E127 04.998	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	8
14/11/2009	S13 45.924	E127 05.325	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 46.022	E127 05.580	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 52.995	E127 06.366	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 53.401	E127 06.571	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.967	E127 06.643	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 54.586	E127 06.762	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 46.856	E127 07.815	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.273	E127 10.856	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.185	E127 11.616	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1

14/11/2009	S13 55.135	E127 11.872	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 56.587	E127 11.901	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 55.608	E127 13.630	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 54.622	E127 13.825	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 49.177	E127 14.141	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.132	E127 14.143	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 53.871	E127 14.676	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 53.941	E127 14.926	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 54.044	E127 15.127	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 54.072	E127 15.444	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.030	E127 15.685	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 54.256	E127 16.219	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 57.049	E127 18.418	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 57.248	E127 18.599	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.729	E127 19.322	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 56.154	E127 19.669	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 54.366	E127 21.674	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>15
14/11/2009	S13 54.742	E127 21.820	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 55.206	E127 22.129	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 55.701	E127 22.795	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 56.443	E127 24.002	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 56.607	E127 24.175	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 56.826	E127 24.634	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 56.786	E127 24.825	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 56.324	E127 25.337	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 56.282	E127 25.645	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	10
14/11/2009	S13 56.402	E127 25.964	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	8
14/11/2009	S13 57.694	E127 26.007	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 56.753	E127 26.019	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 56.961	E127 26.071	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 56.816	E127 26.187	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 57.916	E127 26.211	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 58.255	E127 26.829	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	6
14/11/2009	S13 58.567	E127 27.231	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S14 02.865	E127 27.514	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 02.007	E127 27.647	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1



14/11/2009	S14 02.216	E127 27.685	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S13 59.298	E127 27.822	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 00.223	E127 28.159	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S14 03.637	E127 29.925	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 04.927	E127 31.931	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 06.339	E127 34.009	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 09.328	E127 37.970	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 12.220	E127 44.374	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S14 13.296	E127 45.082	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 18.874	E127 46.133	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
14/11/2009	S14 15.303	E127 46.360	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 20.210	E127 47.007	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 18.508	E127 48.596	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 25.608	E127 49.777	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	~5
14/11/2009	S14 25.200	E127 52.929	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 29.898	E127 55.558	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 28.958	E127 55.961	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S14 32.393	E127 56.685	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 55.149	E127 13.723	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
14/11/2009	S13 49.474	E127 16.423	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	3
14/11/2009	S13 46.001	E127 00.147	Unidentified dolphin species	Family Delphinidae	~7
14/11/2009	S13 50.060	E127 04.764	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	S13 51.695	E127 04.877	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	S13 53.059	E127 05.166	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	S13 57.387	E127 25.967	Unidentified dolphin species	Family Delphinidae	2
14/11/2009	S13 56.752	E127 26.018	Unidentified dolphin species	Family Delphinidae	2
14/11/2009	S14 04.033	E127 31.591	Unidentified dolphin species	Family Delphinidae	4
14/11/2009	S14 19.691	E127 46.724	Unidentified dolphin species	Family Delphinidae	4
14/11/2009	S14 33.250	E128 00.111	Unidentified dolphin species	Family Delphinidae	~7
14/11/2009	S13 47.098	E127 03.247	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	S13 56.325	E127 25.338	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	S13 57.389	E127 25.969	Unidentified shark species	Superorder: Selachimorph	2
14/11/2009	S14 07.243	E127 34.481	Unidentified shark species	Superorder: Selachimorph	2
15/11/2009	S13 56.799	E126 02.132	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S13 56.927	E126 02.346	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S13 57.111	E126 09.513	Dugong	<i>Dugong dugong</i>	2

15/11/2009	S13 59.992	E126 09.909	Dugong	<i>Dugong dugong</i>	2
15/11/2009	S14 03.532	E126 20.207	Dugong	<i>Dugong dugong</i>	2
15/11/2009	S14 02.699	E126 21.872	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S14 02.597	E126 23.084	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S13 59.936	E126 26.847	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S14 00.133	E126 27.070	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S13 56.713	E126 33.090	Dugong	<i>Dugong dugong</i>	1
15/11/2009	S14 04.270	E125 47.985	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	2
15/11/2009	S13 59.946	E126 08.520	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	2
15/11/2009	S14 03.932	E126 10.800	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	1
15/11/2009	S13 59.391	E125 59.097	Ray	Superorder Batoidea	1
15/11/2009	S14 01.051	E126 00.206	Ray	Superorder Batoidea	1
15/11/2009	S13 55.171	E126 02.120	Ray	Superorder Batoidea	1
15/11/2009	S13 56.799	E126 02.132	Ray	Superorder Batoidea	1
15/11/2009	S13 56.927	E126 02.346	Ray	Superorder Batoidea	1
15/11/2009	S13 56.257	E126 03.078	Ray	Superorder Batoidea	1
15/11/2009	S13 53.910	E126 06.042	Ray	Superorder Batoidea	1
15/11/2009	S13 53.911	E126 06.043	Ray	Superorder Batoidea	2
15/11/2009	S13 59.848	E126 08.016	Ray	Superorder Batoidea	1
15/11/2009	S13 59.500	E126 08.277	Ray	Superorder Batoidea	1
15/11/2009	S14 13.379	E126 13.631	Ray	Superorder Batoidea	1
15/11/2009	S14 11.601	E126 14.423	Ray	Superorder Batoidea	1
15/11/2009	S14 10.380	E126 14.574	Ray	Superorder Batoidea	1
15/11/2009	S14 13.157	E126 17.257	Ray	Superorder Batoidea	1
15/11/2009	S14 13.341	E126 17.577	Ray	Superorder Batoidea	1
15/11/2009	S14 13.068	E126 18.123	Ray	Superorder Batoidea	3
15/11/2009	S14 06.643	E126 18.656	Ray	Superorder Batoidea	1
15/11/2009	S14 04.739	E126 20.343	Ray	Superorder Batoidea	1
15/11/2009	S14 04.167	E126 20.430	Ray	Superorder Batoidea	3
15/11/2009	S14 02.637	E126 20.677	Ray	Superorder Batoidea	1
15/11/2009	S14 02.710	E126 21.721	Ray	Superorder Batoidea	1
15/11/2009	S14 02.678	E126 22.417	Ray	Superorder Batoidea	3
15/11/2009	S14 02.273	E126 23.118	Ray	Superorder Batoidea	10
15/11/2009	S14 01.594	E126 23.426	Ray	Superorder Batoidea	6
15/11/2009	S14 01.250	E126 23.516	Ray	Superorder Batoidea	4
15/11/2009	S14 01.068	E126 23.524	Ray	Superorder Batoidea	1

15/11/2009	S13 59.695	E126 25.601	Ray	Superorder Batoidea	1
15/11/2009	S13 59.410	E126 25.771	Ray	Superorder Batoidea	1
15/11/2009	S14 30.312	E125 41.414	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	S13 55.580	E126 06.992	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	S14 03.737	E126 09.713	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	S14 03.806	E125 35.872	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 04.088	E125 39.337	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 04.089	E125 39.451	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 04.498	E125 53.348	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 10.892	E126 08.920	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 32.589	E125 50.685	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 19.570	E125 43.804	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 17.982	E125 43.698	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
15/11/2009	S14 17.639	E125 43.764	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 17.052	E125 42.706	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 17.113	E125 41.093	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 15.324	E125 39.622	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 13.949	E125 37.810	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 22.404	E125 35.350	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 03.158	E125 51.075	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 03.329	E125 52.221	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	12
15/11/2009	S13 59.956	E125 58.307	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.716	E125 58.510	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 01.626	E125 58.665	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 01.274	E125 58.730	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 04.493	E125 59.921	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 04.832	E126 00.354	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.927	E126 02.346	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 55.757	E126 02.602	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 58.863	E126 02.671	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.020	E126 02.850	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.745	E126 03.548	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 00.178	E126 04.292	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 53.737	E126 05.848	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
15/11/2009	S13 55.461	E126 06.637	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 55.813	E126 07.110	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2

15/11/2009	S13 56.179	E126 07.404	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 55.273	E126 07.823	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.323	E126 08.421	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.055	E126 08.655	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 59.546	E126 08.946	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.395	E126 09.130	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 58.621	E126 09.309	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 03.930	E126 09.398	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 03.788	E126 09.571	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.353	E126 09.581	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 58.400	E126 09.594	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	4
15/11/2009	S13 54.912	E126 09.633	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 58.937	E126 09.779	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.325	E126 09.947	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.549	E126 10.332	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 05.432	E126 10.561	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 03.949	E126 10.607	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.947	E126 11.027	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 04.269	E126 11.447	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 10.474	E126 12.186	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 00.775	E126 12.580	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 07.446	E126 12.593	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 06.662	E126 13.438	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 01.491	E126 13.562	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 10.351	E126 13.881	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 11.600	E126 14.422	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 13.370	E126 14.646	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 52.003	E126 14.799	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 13.872	E126 15.502	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 53.007	E126 17.895	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 07.143	E126 18.279	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	4
15/11/2009	S14 06.908	E126 18.523	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 06.534	E126 18.643	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 06.642	E126 18.655	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 05.659	E126 18.983	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 05.631	E126 19.570	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1

15/11/2009	S14 05.655	E126 19.972	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	7
15/11/2009	S14 02.634	E126 20.436	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 02.622	E126 20.535	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 02.671	E126 20.896	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 02.696	E126 21.491	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 02.709	E126 21.720	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 02.683	E126 22.098	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 02.597	E126 23.084	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 00.875	E126 23.652	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S14 00.050	E126 25.507	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.005	E126 26.140	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 54.786	E126 28.085	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.677	E126 28.357	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 54.963	E126 28.797	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 59.212	E126 29.356	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 58.843	E126 29.485	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.741	E126 29.558	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 58.486	E126 29.568	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 57.415	E126 29.839	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.633	E126 30.174	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.622	E126 30.787	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.489	E126 30.942	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 57.331	E126 31.132	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.874	E126 31.554	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.112	E126 32.047	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 56.010	E126 32.177	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.513	E126 32.648	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 56.671	E126 32.873	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 56.628	E126 33.359	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 55.812	E126 00.737	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
15/11/2009	S13 55.181	E126 04.194	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 02.991	E126 19.934	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S13 57.763	E126 30.541	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	2
15/11/2009	S14 22.826	E125 33.986	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	S14 02.301	E125 46.189	Unidentified dolphin species	Family Delphinidae	~7
15/11/2009	S14 02.802	E125 49.194	Unidentified dolphin species	Family Delphinidae	~7

15/11/2009	S14 02.166	E125 58.506	Unidentified dolphin species	Family Delphinidae	3
15/11/2009	S14 03.509	E125 59.286	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	S13 59.775	E126 08.707	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	S13 59.937	E126 26.848	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	S14 15.008	E125 39.387	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	S13 59.895	E125 59.169	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	S14 13.206	E126 13.691	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	S14 02.682	E126 22.097	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	S14 00.511	E126 24.906	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	S13 59.439	E126 26.817	Unidentified shark species	Superorder: Selachimorph	2
16/11/2009	S15 02.640	E125 07.977	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	2
16/11/2009	S15 19.609	E124 41.154	Dugong	<i>Dugong dugong</i>	2
16/11/2009	S14 54.475	E125 14.922	Dugong	<i>Dugong dugong</i>	2
16/11/2009	S15 00.425	E125 04.980	Ray	Superorder Batoidea	1
16/11/2009	S14 49.050	E125 11.645	Ray	Superorder Batoidea	1
16/11/2009	S14 55.521	E125 16.600	Ray	Superorder Batoidea	1
16/11/2009	S14 31.116	E125 32.279	Ray	Superorder Batoidea	1
16/11/2009	S15 08.144	E125 24.557	Saltwater crocodile	<i>Crocodylus porosus</i>	2
16/11/2009	S15 06.785	E124 56.784	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S15 19.414	E124 41.368	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S15 27.557	E124 37.261	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S15 19.610	E124 41.155	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 49.782	E125 00.153	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 49.915	E125 00.163	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 50.419	E125 00.197	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 45.625	E125 00.380	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 44.206	E125 00.430	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S15 02.459	E125 07.762	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 54.951	E125 14.054	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 36.647	E125 14.076	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
16/11/2009	S14 36.544	E125 14.162	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 32.180	E125 15.119	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 32.134	E125 16.111	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 31.064	E125 20.549	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 30.292	E125 21.822	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 33.244	E125 27.655	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1

16/11/2009	S14 29.299	E125 29.321	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 58.485	E125 05.622	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 45.525	E125 07.409	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	10
16/11/2009	S14 38.693	E125 12.353	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 55.915	E125 12.583	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	6
16/11/2009	S14 31.792	E125 19.315	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S15 03.903	E125 21.470	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	1
16/11/2009	S14 16.952	E125 29.585	Sea turtle track	<i>Chelonia</i> or <i>Caretta</i> spp	4
16/11/2009	S15 08.824	E124 50.993	Unidentified dolphin species	Family Delphinidae	4
16/11/2009	S14 57.194	E125 00.914	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	S14 32.247	E125 13.734	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	S14 52.337	E125 13.999	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	S14 16.952	E125 29.585	Unidentified shark species	Superorder: Selachimorph	1
17/11/2009	S16 19.006	E123 51.341	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	2
17/11/2009	S16 19.005	E123 51.340	Ray	Superorder Batoidea	1
17/11/2009	S16 10.644	E123 47.310	Ray	Superorder Batoidea	1
17/11/2009	S16 09.722	E123 35.746	Ray	Superorder Batoidea	1
17/11/2009	S16 19.007	E123 51.342	Ray	Superorder Batoidea	1
17/11/2009	S16 30.994	E123 25.977	Ray	Superorder Batoidea	1
17/11/2009	S16 43.959	E123 08.290	Ray	Superorder Batoidea	1
17/11/2009	S16 31.848	E123 00.265	Ray	Superorder Batoidea	1
17/11/2009	S16 28.458	E123 02.442	Ray	Superorder Batoidea	1
17/11/2009	S16 24.882	E123 01.521	Ray	Superorder Batoidea	2
17/11/2009	S16 23.238	E122 58.494	Ray	Superorder Batoidea	2
17/11/2009	S16 23.707	E122 56.798	Ray	Superorder Batoidea	1
17/11/2009	S16 21.568	E123 01.775	Ray	Superorder Batoidea	1
17/11/2009	S16 23.186	E124 26.981	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	S16 24.641	E124 16.570	Saltwater crocodile	<i>Crocodylus porosus</i>	2
17/11/2009	S16 24.543	E124 13.811	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	S16 22.942	E124 12.576	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	S16 13.360	E123 48.917	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	S16 39.570	E123 30.104	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	S15 58.106	E124 18.175	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S15 58.513	E124 18.816	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 13.289	E123 54.530	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
17/11/2009	S16 13.509	E123 54.649	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2

17/11/2009	S16 14.250	E123 55.125	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>40
17/11/2009	S16 14.687	E123 55.614	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>10
17/11/2009	S16 15.463	E123 56.699	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>10
17/11/2009	S16 21.353	E123 57.126	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	>5
17/11/2009	S16 10.442	E123 47.116	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 09.597	E123 36.309	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S17 04.158	E123 17.168	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 54.470	E123 09.199	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 44.321	E123 07.756	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 42.114	E123 08.709	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 41.923	E123 08.662	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
17/11/2009	S16 41.938	E123 07.915	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
17/11/2009	S16 42.326	E123 07.731	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 37.637	E123 02.350	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 37.402	E123 02.414	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
17/11/2009	S16 35.711	E122 59.220	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 33.775	E122 58.879	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 29.364	E122 59.870	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 27.667	E123 00.058	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 27.825	E123 01.597	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 24.194	E123 01.636	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 23.827	E123 02.212	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 22.963	E123 01.947	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 21.566	E123 01.773	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 21.567	E123 01.774	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 23.307	E122 58.314	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 24.208	E122 54.861	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
17/11/2009	S16 26.179	E124 20.541	Unidentified dolphin species	Family Delphinidae	2
17/11/2009	S16 05.412	E123 46.065	Unidentified dolphin species	Family Delphinidae	~ 8
17/11/2009	S16 23.189	E122 58.608	Unidentified dolphin species	Family Delphinidae	1
17/11/2009	S16 18.764	E123 50.813	Unidentified shark species	Superorder: Selachimorph	1
17/11/2009	S16 27.604	E123 00.597	Unidentified shark species	Superorder: Selachimorph	1
17/11/2009	S16 23.064	E122 58.855	Unidentified shark species	Superorder: Selachimorph	1
18/11/2009	S16 38.201	E122 39.063	Manta ray	<i>Manta birostris</i>	1
18/11/2009	S16 28.513	E122 53.240	Ray	Superorder Batoidea	1
18/11/2009	S16 56.624	E122 14.528	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1



18/11/2009	S16 56.362	E122 14.861	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 56.345	E122 14.883	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 55.025	E122 16.645	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
18/11/2009	S16 54.640	E122 17.113	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 53.201	E122 18.874	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	3
18/11/2009	S16 49.214	E122 24.109	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 47.331	E122 26.811	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 46.825	E122 27.464	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
18/11/2009	S16 39.782	E122 37.016	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 37.939	E122 39.421	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 37.404	E122 40.084	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
18/11/2009	S16 34.774	E122 43.497	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 28.028	E122 52.199	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 27.896	E122 52.375	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	2
18/11/2009	S16 27.103	E122 53.414	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 23.706	E122 58.419	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 22.288	E123 00.340	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 23.503	E122 58.524	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 25.312	E122 54.552	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 38.202	E122 39.064	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 47.223	E122 33.937	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 01.043	E122 20.961	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 01.159	E122 20.846	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 01.818	E122 20.160	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 01.916	E122 20.048	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 02.199	E122 19.730	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 02.498	E122 19.423	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 20.732	E122 09.177	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 34.783	E122 09.112	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 41.077	E122 11.842	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S17 42.852	E122 11.942	Sea turtle	<i>Chelonia</i> or <i>Caretta</i> spp	1
18/11/2009	S16 51.554	E122 20.916	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	S16 48.692	E122 24.865	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	S16 23.860	E122 57.772	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	S16 28.803	E122 52.939	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	S16 34.297	E122 44.122	Whale species	Order Cetacea	1

**Sampling station log for various samplings: from vessel, from helicopter landing sites, and others. For time used, see Table 2, recognizing that clocks were standardized to change over on the night of the 12<sup>th</sup> Nov. – from NT to WA time.**

Site ID	Site name (platform)	Lat	Long	Date	Time (local time):
S1	Pearce Point, NT (boat)	S 14° 25'42.9	E 129° 20'19.0	11-Nov-09	13:15

Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)
0m	7.09 / 92.4	7.91	29.9	37.9
5m	na	8.28	29.4	38.7

1L water samples taken at above depths

Sediment/ fauna: None, taken, sampler lost

Secchi depth: 1m

Conditions: Sunny, med wind, strong current, total depth 12 m

S2	Victoria River Mouth, NT (boat)	S 14° 38'47.5"	E 129° 11'16.6	11-Nov-09	18:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.27 / 95.5	8.37	29.7	38	
6m	na	8.38	29.1	38.8	
10m	na	8.39	29.2	38.6	

1L water samples taken at above depths

Sediment/fauna: None taken,

Secchi Depth: 0.5 m

Conditions: Windy, stormy, stirred up strong current

S3	Pelican Island, WA (boat)	S 14° 45'17.1"	E 128° 46'58.5"	12-Nov-09	11:50
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.25/97.1	8.39	31.3	38.3	
5m	na	8.4	30.2	38.5	
10m	na	8.39	30.1	38.3	

1L water samples taken at above depths

Sediment/fauna: sediment attempted, hard substrate, few bits of material retained

Secchi Depth: 1.5 m

Conditions: light wind, sunny

S4	Pelican Island, WA (beach)	S 14° 46'18.5"	E 128° 46'31.2	12-Nov-09	13:30
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Parameters not taken

1L water samples taken at surface

Sediment/fauna: collected by hand from beach sand

Secchi Depth: 0.5 m

Conditions: light wind, sunny

S5	Cape Londonderry, WA (beach)	S 13.74018	E 126.9689	14-Nov-09	10:25
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Parameters not taken

1L water sample taken at surface (0m) from beach  
 Sediment collected from beach coarse sand /shell  
 Conditions: Sunny, no wind, beach with coral flat

S6	Anjo Peninsula, WA (beach)	S 13.94326	E 126.56251	14-Nov-09	15:25
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Parameters not taken

1L water sample taken at surface from beach  
 Sediment collected from beach sand, oysters taken  
 Conditions: overcast light wind, passing storms in area

S7	Sir Graham Moore Is, WA (Beach)	S 13.88242	E 126.58974	14-Nov-09	16:30
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Parameters not taken

1L water sample taken at surface (0m) from beach  
 Sediment collected from beach, coral/shell  
 Conditions: Overcast, light wind, passing storms in area

S8	Sir Graham Moore Is, WA (Boat)	S 13° 52.61	E 126° 29.07	14-Nov-09	18:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.45/98.3	8.33	30.1	38.8	
10m	na	8.34	30	38.7	

1L water samples taken at above depths  
 Sediment/fauna: Sediment obtained, gray mud  
 Secchi Depth: 4 m  
 Conditions: Overcast, light wind

S9	North Eclipse Island, WA (boat)	S 13° 42'37.6"	E 126° 19'38.8"	15-Nov-09	6:30
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Parameters not taken

1L water sample taken at surface (0m) and 10m  
 Sediment: None taken  
 Secchi depth: 9m  
 Conditions: calm, sunny

S10	Suspect area identified by helicopter (Boat)	S 13° 49'21.8"	E 126° 06'13.4"	15-Nov-09	9:45
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment: none taken  
 Small bottle sample with white waxy clumps found in floating algal mat (Sargassum sp)  
 algae mat (Sargassum sp.) sampled, wrapped in foil  
 Secchi depth: 9m  
 Conditions: calm sunny

S10.5	Suspect area identified from boat, WA (boat)	S 14° 03'49.8"	E 126° 53'34.5"	15-Nov-09	11:30
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Parameters not taken, only 200 ml bottle with particles in it.  
 looked under microscope, most likely algae trycodesmium diatom algae

S11	Hat Point, WA (beach)	S 13.92700	E 125.98434	15-Nov-09	10:06
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach, bivalve tissue sample  
 Conditions: sunny calm

S12	Gibson Point, WA (beach)	S 13.9913	E 125.98434	15-Nov-09	12:14
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach, bivalve tissue sample taken  
 Conditions: sunny calm

S13	Cape Voltaire, WA (beach)	S 14.25930	E 125.58485	15-Nov-09	16:00
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach with turtle nests  
 Conditions: sunny calm

S14	Bigges Island, WA (boat)	S 14° 32'49.2"	E 125° 05'11.2"	16-Nov-09	6:30
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Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)
0m	7.33/96.1	8.31	30.7	37

1L water samples taken at 0m, 8m  
 Sediment sample not taken, substrate rock, depth 28m  
 Secch depth: 4m  
 Conditions calm sunny, strong tidal current

S15	Cape Brewster, WA (beach)	S 15.11526	E 124.67610	16-Nov-09	9:30
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment taken, sandy beach  
 Conditions: high tide calm sunny

S16	Port George the Fourth, WA (beach)	S 15.29353	E 124.67610	16-Nov-09	10:40
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment taken, sandy beach  
 Conditions: high tide calm sunny

S17	Montgomery Island, WA (from boat)	S 15° 48'02.3"	E 124° 03'13.0"	16-Nov-09	20:00
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.74/100.3	8.15	29	38.3	
10m	na	8.15	29	38.7	

1L water sample taken at surface (0m) and 10m  
 Depth too deep to take sediment sample (ca 30m+)  
 Conditions: light chop, moderate current

S17.5	Montgomery Island, WA (from helicopter/shore)	S 15.95465	E 124.21360	16-Nov-09	16:05
Parameters not taken					

2x 200ml water sample taken at surface (0m)  
 No sediment  
 Conditions low tide, muddy, windy, mangrove island

S18	Strickland Bay?, WA (beach)	S 16.29788	E 123.56147	17-Nov-09	10:03
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S19	Entrance to King Sound East, WA (from beach)	S 16.65677	E 123.50729	17-Nov-09	11:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S 20	King Sound Entrance, West	S 16.85969	E 123.16286	17-Nov-09	13:50
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S 21	One Arm Point, WA (beach)	S 16.35893	E 123.03236	17-Nov-09	15:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, windy, sunny

S 22	Lacepede Islands, WA (boat)	S 16°53'02.6"	E 122° 14'26.2	18-Nov-09	7:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.65/98.6	8.3	29.2	37.9	
10m	na	8.29	29	38.5	

1L water sample taken at surface (0m) and 10m  
 Sediment: not taken, attempted but too rocky/ coraly  
 Conditions: calm, sunny, moderate current

S 23	Dampier Peninsula Beach, WA (Beach)	S 16.76449	E 122.58679	18-Nov-09	11:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: windy, sunny

S 24	Broome Cable Beach, WA (beach)	S 17.938046	E 122.209392	18-Nov-09	14:45
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: windy, sunny



## Shoreline Classifications

### Shoreline Stability



**Depositional:** Low slope gradient. Noticeable mangrove height gradient with recent seedling colonization in front.



**Eroding:** Steep bank gradient. Exposed face. Mangrove roots exposed. Sharp decline in vegetation (tall trees to no trees).

## Vegetated Habitat Types



**Mangroves**



**Saltmarsh**



**Coastal Woodland**



**Fringing Coral**



**Seagrass Verge**



## Shoreline Physical Characteristics



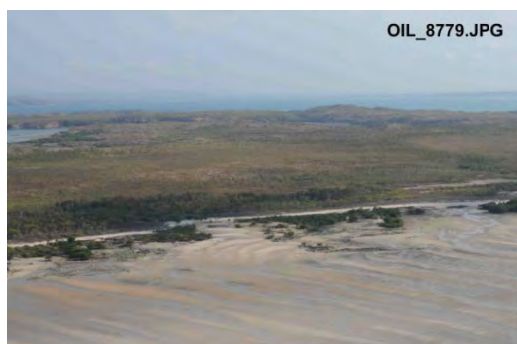
**Beaches:** Including sandy (OIL\_2466.JPG, OIL\_2078.JPG, OIL\_2204.JPG) and rocky (2009-11-16-ONE-Clip 7 0350.JPG) beaches.



**Dunes:** Vegetated dunes (PB170088.JPG, OIL\_2197.JPG), exposed dunes (OIL\_2406.JPG) and Chenier ridges (PB090115.JPG).



**Rocky Shore:** Cliff (OIL\_8848.JPG), low energy rocky shore (PB090091.JPG), high energy rocky shore (OIL\_2375.JPG), rock wall (PB090066.JPG)



**Flats:** Mud flats (PB170131.JPG, PB090073.JPG), Sand flats (OIL\_8779.JPG), Salt Flats (OIL\_1681.JPG)



## **Tidal Wetlands**



DSC04982.JPG

**Mangroves**



OIL\_8799.JPG



PB090279.JPG

**Saltmarsh**



OIL\_1776.JPG



DSC02598.JPG

**Salt Flat**



OIL\_1681.JPG



PB090073.JPG

**Sand and Mud Flats**



OIL\_8779.JPG

## Marine Megafauna Observations

Date	Lat	Long	Common Name	Genus/Species	Number observed
9/11/2009	-12.58942	130.56357	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	1
9/11/2009	-12.47828	130.58252	Dugong	<i>Dugong dugong</i>	1
9/11/2009	-12.47574	130.58015	Ray	Superorder Batoidea	2
9/11/2009	-12.50060	130.58491	Ray	Superorder Batoidea	2
9/11/2009	-12.45979	130.57371	Sea turtle	<i>Chelonia or Caretta spp</i>	1
9/11/2009	-12.52943	130.57288	Sea turtle	<i>Chelonia or Caretta spp</i>	1
9/11/2009	-12.58462	130.56228	Sea turtle	<i>Chelonia or Caretta spp</i>	1
10/11/2009	-13.21532	130.07470	Dugong	<i>Dugong dugong</i>	2
10/11/2009	-13.21532	130.07470	Sea turtle	<i>Chelonia or Caretta spp</i>	2
10/11/2009	-13.50825	129.85314	Sea turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.75922	128.72495	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	5
12/11/2009	-14.87527	128.45090	Dugong	<i>Dugong dugong</i>	1
12/11/2009	-14.61878	128.34828	Dugong	<i>Dugong dugong</i>	1
12/11/2009	-14.77830	128.61120	Sea turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.63672	128.41137	Sea turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.66505	128.50162	Sea turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.79885	128.68409	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.62850	128.38230	Unidentified dolphin species	Family Delphinidae	1
12/11/2009	-14.62882	128.38337	Unidentified dolphin species	Family Delphinidae	1
12/11/2009	-14.59767	128.05430	Dugong	<i>Dugong dugong</i>	3
12/11/2009	-14.59765	128.05428	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	4
12/11/2009	-14.54182	127.97175	Sea turtle	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.71018	128.16563	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
12/11/2009	-14.58747	128.13703	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	-14.23987	127.76197	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-14.42982	127.82827	Dugong	<i>Dugong dugong</i>	2
14/11/2009	-14.42682	127.82963	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-14.44350	127.87808	Dugong	<i>Dugong dugong</i>	1

14/11/2009	-14.48683	127.93608	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-14.54295	127.94418	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-14.26118	127.72003	Ray	Superorder Batoidea	11
14/11/2009	-14.30912	127.76717	Saltwater crocodile	<i>Crocodylus porosus</i>	1
14/11/2009	-14.04775	127.45857	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.03345	127.46078	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.03693	127.46142	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.98830	127.46370	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.00372	127.46932	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-14.06062	127.49875	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.08212	127.53218	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.10565	127.56682	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.15547	127.63283	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.20367	127.73957	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-14.22160	127.75137	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.31457	127.76888	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-14.25505	127.77267	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.33683	127.78345	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.30847	127.80993	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.42680	127.82962	Sea turtle	<i>Chelonia or Caretta spp</i>	5
14/11/2009	-14.42000	127.88215	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.49830	127.92597	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.48263	127.93268	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.53988	127.94475	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.06722	127.52652	Unidentified dolphin species	Family Delphinidae	4
14/11/2009	-14.32818	127.77873	Unidentified dolphin species	Family Delphinidae	4
14/11/2009	-14.55417	128.00185	Unidentified dolphin species	Family Delphinidae	7
14/11/2009	-14.12072	127.57468	Unidentified shark species	Superorder: Selachimorph	2
14/11/2009	-13.78560	126.83355	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.97460	126.80357	Dugong	<i>Dugong dugong</i>	3
14/11/2009	-13.96895	126.79778	Dugong	<i>Dugong dugong</i>	1

14/11/2009	-13.74845	127.03223	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.78495	127.05410	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.91505	127.22972	Dugong	<i>Dugong dugong</i>	2
14/11/2009	-13.90222	127.23573	Dugong	<i>Dugong dugong</i>	2
14/11/2009	-13.90122	127.25742	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.93588	127.32780	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.92833	127.37990	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.95647	127.43280	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.94588	127.43365	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.95192	127.43435	Dugong	<i>Dugong dugong</i>	1
14/11/2009	-13.76375	126.91923	Eagle ray	Superorder Batoidea	1
14/11/2009	-13.94282	127.20427	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	3
14/11/2009	-13.77692	126.59900	Manta ray	<i>Manta birostris</i>	2
14/11/2009	-14.12608	126.69148	Ray	Superorder Batoidea	1
14/11/2009	-14.01572	126.49422	Ray	Superorder Batoidea	1
14/11/2009	-13.80292	127.04657	Saltwater crocodile	<i>Crocodylus porosus</i>	1
14/11/2009	-13.73960	126.96647	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.74553	126.96837	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.73987	126.97202	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.75100	126.97552	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.75185	126.98263	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.74492	127.00275	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.77247	127.00540	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.79057	127.02220	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.80072	127.03268	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.80430	127.04413	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.80798	127.05415	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.81373	127.05482	Sea turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.75438	127.05952	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.75885	127.07092	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76000	127.07405	Sea turtle	<i>Chelonia or Caretta spp</i>	2

14/11/2009	-13.87307	127.07663	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76287	127.08167	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.83847	127.08330	Sea turtle	<i>Chelonia or Caretta spp</i>	8
14/11/2009	-13.76540	127.08875	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76703	127.09300	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.88325	127.10610	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.89002	127.10952	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.91612	127.11072	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.90977	127.11270	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.78093	127.13025	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.90455	127.18093	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.90308	127.19360	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.91892	127.19787	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.94312	127.19835	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.92680	127.22717	Sea turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.91037	127.23042	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.81962	127.23568	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.90220	127.23572	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.89785	127.24460	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.89902	127.24877	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.90073	127.25212	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.90120	127.25740	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.90050	127.26142	Sea turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.90427	127.27032	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.95082	127.30697	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.95413	127.30998	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.91215	127.32203	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.93590	127.32782	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.90610	127.36123	Sea turtle	<i>Chelonia or Caretta spp</i>	15
14/11/2009	-13.91237	127.36367	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.92010	127.36882	Sea turtle	<i>Chelonia or Caretta spp</i>	1

14/11/2009	-13.92835	127.37992	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.94072	127.40003	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.94345	127.40292	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.94710	127.41057	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.94643	127.41375	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.93873	127.42228	Sea turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.93803	127.42742	Sea turtle	<i>Chelonia or Caretta spp</i>	10
14/11/2009	-13.94003	127.43273	Sea turtle	<i>Chelonia or Caretta spp</i>	8
14/11/2009	-13.96157	127.43345	Sea turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.94588	127.43365	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.94935	127.43452	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.94693	127.43645	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.96527	127.43685	Sea turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.97092	127.44715	Sea turtle	<i>Chelonia or Caretta spp</i>	6
14/11/2009	-13.97612	127.45385	Sea turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.91915	127.22872	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.82457	127.27372	Sea turtle track	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.83540	126.75993	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	-14.09872	126.51382	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	-13.73758	127.00758	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.73840	126.96187	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.74320	126.95133	Sea Turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.74365	126.91120	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.74748	126.91315	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76342	126.91350	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76112	126.90632	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.75775	126.90230	Sea Turtle	<i>Chelonia or Caretta spp</i>	3
14/11/2009	-13.75538	126.89937	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.74900	126.88653	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.74675	126.87195	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76467	126.84595	Sea Turtle	<i>Chelonia or Caretta spp</i>	3



14/11/2009	-13.78195	126.85348	Sea Turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.80268	126.83473	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.79188	126.83508	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76923	126.80710	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.77358	126.79575	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.78122	126.78877	Sea Turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.77753	126.76325	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.78490	126.74740	Sea Turtle	<i>Chelonia or Caretta spp</i>	2
14/11/2009	-13.80702	126.75165	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.82825	126.75618	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.86292	126.77127	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.01225	126.69335	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.06995	126.72388	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.14392	126.54688	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.09752	126.51935	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.06158	126.47892	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-14.05062	126.49392	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.94455	126.55298	Sea Turtle	<i>Chelonia or Caretta spp</i>	1
14/11/2009	-13.76668	127.00245	Unidentified dolphin species	Family Delphinidae	7
14/11/2009	-13.83433	127.07940	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	-13.86158	127.08128	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	-13.88432	127.08610	Unidentified dolphin species	Family Delphinidae	1
14/11/2009	-13.95645	127.43278	Unidentified dolphin species	Family Delphinidae	2
14/11/2009	-13.94587	127.43363	Unidentified dolphin species	Family Delphinidae	2
14/11/2009	-13.78497	127.05412	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	-13.93875	127.42230	Unidentified shark species	Superorder: Selachimorph	1
14/11/2009	-13.95648	127.43282	Unidentified shark species	Superorder: Selachimorph	2
15/11/2009	-14.37340	125.58917	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.38043	125.56643	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	-13.94522	126.55150	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-13.94188	126.54413	Sea turtle	<i>Chelonia or Caretta spp</i>	1

15/11/2009	-13.94452	126.54788	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.94380	126.55598	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.94665	126.03553	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-13.94878	126.03910	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-13.95185	126.15855	Dugong	<i>Dugong dugong</i>	2
15/11/2009	-13.99987	126.16515	Dugong	<i>Dugong dugong</i>	2
15/11/2009	-14.05887	126.33678	Dugong	<i>Dugong dugong</i>	2
15/11/2009	-14.04498	126.36453	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-14.04328	126.38473	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-13.99893	126.44745	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-14.00222	126.45117	Dugong	<i>Dugong dugong</i>	1
15/11/2009	-14.07117	125.79975	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	2
15/11/2009	-13.99910	126.14200	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	2
15/11/2009	-14.06553	126.18000	Indo-Pacific bottlenose dolphin	<i>Tursiops aduncas</i>	1
15/11/2009	-13.98985	125.98495	Ray	Superorder Batoidea	1
15/11/2009	-14.01752	126.00343	Ray	Superorder Batoidea	1
15/11/2009	-13.91952	126.03533	Ray	Superorder Batoidea	1
15/11/2009	-13.94665	126.03553	Ray	Superorder Batoidea	1
15/11/2009	-13.94878	126.03910	Ray	Superorder Batoidea	1
15/11/2009	-13.93762	126.05130	Ray	Superorder Batoidea	1
15/11/2009	-13.89850	126.10070	Ray	Superorder Batoidea	1
15/11/2009	-13.89852	126.10072	Ray	Superorder Batoidea	2
15/11/2009	-13.99747	126.13360	Ray	Superorder Batoidea	1
15/11/2009	-13.99167	126.13795	Ray	Superorder Batoidea	1
15/11/2009	-14.22298	126.22718	Ray	Superorder Batoidea	1
15/11/2009	-14.19335	126.24038	Ray	Superorder Batoidea	1
15/11/2009	-14.17300	126.24290	Ray	Superorder Batoidea	1
15/11/2009	-14.21928	126.28762	Ray	Superorder Batoidea	1
15/11/2009	-14.22235	126.29295	Ray	Superorder Batoidea	1
15/11/2009	-14.21780	126.30205	Ray	Superorder Batoidea	3
15/11/2009	-14.11072	126.31093	Ray	Superorder Batoidea	1

15/11/2009	-14.07898	126.33905	Ray	Superorder Batoidea	1
15/11/2009	-14.06945	126.34050	Ray	Superorder Batoidea	3
15/11/2009	-14.04395	126.34462	Ray	Superorder Batoidea	1
15/11/2009	-14.04517	126.36202	Ray	Superorder Batoidea	1
15/11/2009	-14.04463	126.37362	Ray	Superorder Batoidea	3
15/11/2009	-14.03788	126.38530	Ray	Superorder Batoidea	10
15/11/2009	-14.02657	126.39043	Ray	Superorder Batoidea	6
15/11/2009	-14.02083	126.39193	Ray	Superorder Batoidea	4
15/11/2009	-14.01780	126.39207	Ray	Superorder Batoidea	1
15/11/2009	-13.99492	126.42668	Ray	Superorder Batoidea	1
15/11/2009	-13.99017	126.42952	Ray	Superorder Batoidea	1
15/11/2009	-14.50520	125.69023	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	-13.92633	126.11653	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	-14.06228	126.16188	Saltwater crocodile	<i>Crocodylus porosus</i>	1
15/11/2009	-14.06343	125.59787	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.06813	125.65562	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.06815	125.65752	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.07497	125.88913	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.18153	126.14867	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.54315	125.84475	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.32617	125.73007	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.29970	125.72830	Sea turtle	<i>Chelonia or Caretta spp</i>	3
15/11/2009	-14.29398	125.72940	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.28420	125.71177	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.28522	125.68488	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.25540	125.66037	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.23248	125.63017	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.05263	125.85125	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.05548	125.87035	Sea turtle	<i>Chelonia or Caretta spp</i>	12
15/11/2009	-13.99927	125.97178	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.99527	125.97517	Sea turtle	<i>Chelonia or Caretta spp</i>	1

15/11/2009	-14.02710	125.97775	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.02123	125.97883	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.07488	125.99868	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.08053	126.00590	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.94878	126.03910	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.92928	126.04337	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.98105	126.04452	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.93367	126.04750	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.96242	126.05913	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.00297	126.07153	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.89562	126.09747	Sea turtle	<i>Chelonia or Caretta spp</i>	3
15/11/2009	-13.92435	126.11062	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.93022	126.11850	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.93632	126.12340	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.92122	126.13038	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98872	126.14035	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98425	126.14425	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.99243	126.14910	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98992	126.15217	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.97702	126.15515	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.06550	126.15663	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.06313	126.15952	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98922	126.15968	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.97333	126.15990	Sea turtle	<i>Chelonia or Caretta spp</i>	4
15/11/2009	-13.91520	126.16055	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98228	126.16298	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.93875	126.16578	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.95915	126.17220	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.09053	126.17602	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.06582	126.17678	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.94912	126.18378	Sea turtle	<i>Chelonia or Caretta spp</i>	1

15/11/2009	-14.07115	126.19078	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.17457	126.20310	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.01292	126.20967	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.12410	126.20988	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.11103	126.22397	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.02485	126.22603	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.17252	126.23135	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.19333	126.24037	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.22283	126.24410	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.86672	126.24665	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.23120	126.25837	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.88345	126.29825	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.11905	126.30465	Sea turtle	<i>Chelonia or Caretta spp</i>	4
15/11/2009	-14.11513	126.30872	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.10890	126.31072	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.11070	126.31092	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.09432	126.31638	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.09385	126.32617	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.09425	126.33287	Sea turtle	<i>Chelonia or Caretta spp</i>	7
15/11/2009	-14.04390	126.34060	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.04370	126.34225	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.04452	126.34827	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.04493	126.35818	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.04515	126.36200	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.04472	126.36830	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.04328	126.38473	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.01458	126.39420	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-14.00083	126.42512	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98342	126.43567	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.91310	126.46808	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.99462	126.47262	Sea turtle	<i>Chelonia or Caretta spp</i>	1

15/11/2009	-13.91605	126.47995	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98687	126.48927	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.98072	126.49142	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.96235	126.49263	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.97477	126.49280	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.95692	126.49732	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.96055	126.50290	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.96037	126.51312	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.95815	126.51570	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.95552	126.51887	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.94790	126.52590	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.93520	126.53412	Sea turtle	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.93350	126.53628	Sea turtle	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.93020	126.01228	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
15/11/2009	-13.91968	126.06990	Sea turtle track	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.04985	126.33223	Sea turtle track	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-13.96272	126.50902	Sea turtle track	<i>Chelonia or Caretta spp</i>	2
15/11/2009	-14.03835	125.76982	Unidentified dolphin species	Family Delphinidae	7
15/11/2009	-14.04670	125.81990	Unidentified dolphin species	Family Delphinidae	7
15/11/2009	-14.03610	125.97510	Unidentified dolphin species	Family Delphinidae	3
15/11/2009	-14.05848	125.98810	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	-13.99625	126.14512	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	-13.99895	126.44747	Unidentified dolphin species	Family Delphinidae	1
15/11/2009	-14.25013	125.65645	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	-13.99825	125.98615	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	-14.22010	126.22818	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	-14.04470	126.36828	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	-14.00852	126.41510	Unidentified shark species	Superorder: Selachimorph	1
15/11/2009	-13.99065	126.44695	Unidentified shark species	Superorder: Selachimorph	2
16/11/2009	-14.51860	125.53798	Ray	Superorder Batoidea	1
16/11/2009	-14.61078	125.23460	Sea turtle	<i>Chelonia or Caretta spp</i>	2

16/11/2009	-14.60907	125.23603	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.53633	125.25198	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.53557	125.26852	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.51773	125.34248	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.50487	125.36370	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.55407	125.46092	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.48832	125.48868	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.64488	125.20588	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.52987	125.32192	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.28253	125.49308	Sea turtle track	<i>Chelonia or Caretta spp</i>	4
16/11/2009	-14.53745	125.22890	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	-14.28253	125.49308	Unidentified shark species	Superorder: Selachimorph	1
16/11/2009	-15.04400	125.13295	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	2
16/11/2009	-14.90792	125.24870	Dugong	<i>Dugong dugong</i>	2
16/11/2009	-15.00708	125.08300	Ray	Superorder Batoidea	1
16/11/2009	-14.81750	125.19408	Ray	Superorder Batoidea	1
16/11/2009	-14.92535	125.27667	Ray	Superorder Batoidea	1
16/11/2009	-15.13573	125.40928	Saltwater crocodile	<i>Crocodylus porosus</i>	2
16/11/2009	-15.11308	124.94640	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.82970	125.00255	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.83192	125.00272	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.84032	125.00328	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.76042	125.00633	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.73677	125.00717	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.04098	125.12937	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.91585	125.23423	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.97475	125.09370	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-14.75875	125.12348	Sea turtle track	<i>Chelonia or Caretta spp</i>	10
16/11/2009	-14.93192	125.20972	Sea turtle track	<i>Chelonia or Caretta spp</i>	6
16/11/2009	-15.06505	125.35783	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.14707	124.84988	Unidentified dolphin species	Family Delphinidae	4

16/11/2009	-14.95323	125.01523	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	-14.87228	125.23332	Unidentified dolphin species	Family Delphinidae	1
16/11/2009	-15.32682	124.68590	Dugong	<i>Dugong dugong</i>	2
16/11/2009	-15.96865	124.20543	Dugong	<i>Dugong dugong</i>	1
16/11/2009	-15.96768	124.20282	Ray	Superorder Batoidea	1
16/11/2009	-15.32357	124.68947	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.45928	124.62102	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.32683	124.68592	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.18105	124.37865	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.43683	124.47047	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.54627	124.41788	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.57875	124.42583	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.67507	124.36710	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.68452	124.37595	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.69042	124.38782	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.70862	124.39445	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.74053	124.38935	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.74750	124.39047	Sea turtle	<i>Chelonia or Caretta spp</i>	2
16/11/2009	-15.83222	124.40403	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.85182	124.40545	Sea turtle	<i>Chelonia or Caretta spp</i>	2
16/11/2009	-15.87385	124.40815	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.87450	124.45873	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.94827	124.48137	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-16.09732	124.48015	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.94000	124.29743	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.94000	124.29743	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.94000	124.29743	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.94000	124.29743	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.91918	124.31913	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.92547	124.29735	Sea turtle	<i>Chelonia or Caretta spp</i>	2
16/11/2009	-15.93985	124.27105	Sea turtle	<i>Chelonia or Caretta spp</i>	1



16/11/2009	-15.94260	124.25975	Sea turtle	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.55002	124.41413	Sea turtle track	<i>Chelonia or Caretta spp</i>	1
16/11/2009	-15.83647	124.20127	Unidentified dolphin species	Family Delphinidae	5
16/11/2009	-15.94632	124.24195	Unidentified shark species	Superorder: Selachimorph	1
16/11/2009	-15.97292	124.22143	Unidentified shark species	Superorder: Selachimorph	1
16/11/2009	-15.95465	124.23460	Unidentified shark species	Superorder: Selachimorph	1
16/11/2009	-15.91915	124.20965	Unidentified shark species	Superorder: Selachimorph	1
17/11/2009	-15.96843	124.30292	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-15.97522	124.31360	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.31677	123.85568	Australian snubfin dolphin	<i>Orcaella heinsohni</i>	2
17/11/2009	-16.31678	123.85570	Ray	Superorder Batoidea	1
17/11/2009	-16.51657	123.43295	Ray	Superorder Batoidea	1
17/11/2009	-16.31675	123.85567	Ray	Superorder Batoidea	1
17/11/2009	-16.17740	123.78850	Ray	Superorder Batoidea	1
17/11/2009	-16.16203	123.59577	Ray	Superorder Batoidea	1
17/11/2009	-16.65950	123.50173	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	-16.38643	124.44968	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	-16.41068	124.27617	Saltwater crocodile	<i>Crocodylus porosus</i>	2
17/11/2009	-16.40905	124.23018	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	-16.38237	124.20960	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	-16.22267	123.81528	Saltwater crocodile	<i>Crocodylus porosus</i>	1
17/11/2009	-16.22148	123.90883	Sea turtle	<i>Chelonia or Caretta spp</i>	2
17/11/2009	-16.22515	123.91082	Sea turtle	<i>Chelonia or Caretta spp</i>	2
17/11/2009	-16.23750	123.91875	Sea turtle	<i>Chelonia or Caretta spp</i>	40
17/11/2009	-16.24478	123.92690	Sea turtle	<i>Chelonia or Caretta spp</i>	10
17/11/2009	-16.25772	123.94498	Sea turtle	<i>Chelonia or Caretta spp</i>	10
17/11/2009	-16.35588	123.95210	Sea turtle	<i>Chelonia or Caretta spp</i>	5
17/11/2009	-16.17403	123.78527	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.15995	123.60515	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.43632	124.34235	Unidentified dolphin species	Family Delphinidae	2
17/11/2009	-16.09020	123.76775	Unidentified dolphin species	Family Delphinidae	8

17/11/2009	-16.31273	123.84688	Unidentified shark species	Superorder: Selachimorph	1
17/11/2009	-16.73265	123.13817	Ray	Superorder Batoidea	1
17/11/2009	-17.06930	123.28613	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.90783	123.15332	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.73868	123.12927	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.70190	123.14515	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.69872	123.14437	Sea turtle	<i>Chelonia or Caretta spp</i>	2
17/11/2009	-16.53080	123.00442	Ray	Superorder Batoidea	1
17/11/2009	-16.47430	123.04070	Ray	Superorder Batoidea	1
17/11/2009	-16.41470	123.02535	Ray	Superorder Batoidea	2
17/11/2009	-16.38730	122.97490	Ray	Superorder Batoidea	2
17/11/2009	-16.39512	122.94663	Ray	Superorder Batoidea	1
17/11/2009	-16.35947	123.02958	Ray	Superorder Batoidea	1
17/11/2009	-16.69897	123.13192	Sea turtle	<i>Chelonia or Caretta spp</i>	2
17/11/2009	-16.70543	123.12885	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.62728	123.03917	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.62337	123.04023	Sea turtle	<i>Chelonia or Caretta spp</i>	2
17/11/2009	-16.59518	122.98700	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.56292	122.98132	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.48940	122.99783	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.46112	123.00097	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.46375	123.02662	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.40323	123.02727	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.39712	123.03687	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.38272	123.03245	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.35943	123.02955	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.35945	123.02957	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.38845	122.97190	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.40347	122.91435	Sea turtle	<i>Chelonia or Caretta spp</i>	1
17/11/2009	-16.38648	122.97680	Unidentified dolphin species	Family Delphinidae	1
17/11/2009	-16.46007	123.00995	Unidentified shark species	Superorder: Selachimorph	1

17/11/2009	-16.38440	122.98092	Unidentified shark species	Superorder: Selachimorph	1
18/11/2009	-16.63668	122.65105	Manta ray	<i>Manta birostris</i>	1
18/11/2009	-16.47522	122.88733	Ray	Superorder Batoidea	1
18/11/2009	-16.66303	122.61693	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.63232	122.65702	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.62340	122.66807	Sea turtle	<i>Chelonia or Caretta spp</i>	2
18/11/2009	-16.57957	122.72495	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.46713	122.86998	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.46493	122.87292	Sea turtle	<i>Chelonia or Caretta spp</i>	2
18/11/2009	-16.45172	122.89023	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.39510	122.97365	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.37147	123.00567	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.39172	122.97540	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.42187	122.90920	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.63670	122.65107	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.78705	122.56562	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.78885	122.44685	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.78042	122.45773	Sea turtle	<i>Chelonia or Caretta spp</i>	2
18/11/2009	-16.39767	122.96287	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	-16.48005	122.88232	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	-16.57162	122.73537	Whale species	Order Cetacea	1
18/11/2009	-17.01738	122.34935	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.01932	122.34743	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.03030	122.33600	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.03193	122.33413	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.03665	122.32883	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.04163	122.32372	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.34553	122.15295	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.57972	122.15187	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.68462	122.19737	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-17.71420	122.19903	Sea turtle	<i>Chelonia or Caretta spp</i>	1

18/11/2009	-16.94373	122.24213	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.93937	122.24768	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.93908	122.24805	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.91708	122.27742	Sea turtle	<i>Chelonia or Caretta spp</i>	2
18/11/2009	-16.91067	122.28522	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.88668	122.31457	Sea turtle	<i>Chelonia or Caretta spp</i>	3
18/11/2009	-16.82023	122.40182	Sea turtle	<i>Chelonia or Caretta spp</i>	1
18/11/2009	-16.85923	122.34860	Unidentified dolphin species	Family Delphinidae	1
18/11/2009	-16.81153	122.41442	Unidentified dolphin species	Family Delphinidae	1

## Sampling Survey Sites

Sampling station log for various samplings: from vessel, from helicopter landing sites, and others. For time used, see Table 2, recognizing that clocks were standardized to change over on the night of the 12<sup>th</sup> Nov. – from NT to WA time.

Site ID	Site name (platform)	Lat	Long	Date	Time (local time):
S1	Pearce Point, NT (boat)	S 14° 25'42.9	E 129° 20'19.0	11-Nov-09	13:15

Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)
0m	7.09 / 92.4	7.91	29.9	37.9
5m	na	8.28	29.4	38.7

1L water samples taken at above depths

Sediment/ fauna: none, taken, sampler lost

Secchi depth: 1m

Conditions: sunny, med wind, strong current, total depth 12 m

S2	Victoria River Mouth, NT (boat)	S 14° 38'47.5"	E 129° 11'16.6	11-Nov-09	18:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.27 / 95.5	8.37	29.7	38	
6m	na	8.38	29.1	38.8	
10m	na	8.39	29.2	38.6	

1L water samples taken at above depths

Sediment/fauna: None taken,

Secchi Depth: 0.5 m

Conditions: Windy, stormy, stirred up strong current

S3	Pelican Island, WA (boat)	S 14° 45'17.1"	E 128° 46'58.5"	12-Nov-09	11:50
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.25/97.1	8.39	31.3	38.3	
5m	na	8.4	30.2	38.5	
10m	na	8.39	30.1	38.3	

1L water samples taken at above depths

Sediment/fauna: sediment attempted, hard substrate, few bits of material retained

Secchi Depth: 1.5 m

Conditions: light wind, sunny

S4	Pelican Island, WA (beach)	S 14° 46'18.5"	E 128° 46'31.2	12-Nov-09	13:30
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Parameters not taken

1L water samples taken at surface

Sediment/fauna: collected by hand from beach sand

Secchi Depth: 0.5 m

Conditions: light wind, sunny

S5	Cape Londonderry, WA (beach)	S 13.74018	E 126.9689	14-Nov-09	10:25
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Parameters not taken

1L water sample taken at surface (0m) from beach  
 Sediment collected from beach coarse sand /shell  
 Conditions: Sunny, no wind, beach with coral flat

S6	Anjo Peninsula, WA (beach)	S 13.94326	E 126.56251	14-Nov-09	15:25
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Parameters not taken

1L water sample taken at surface from beach  
 Sediment collected from beach sand, oysters taken  
 Conditions: overcast light wind, passing storms in area

S7	Sir Graham Moore Is, WA (Beach)	S 13.88242	E 126.58974	14-Nov-09	16:30
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Parameters not taken

1L water sample taken at surface (0m) from beach  
 Sediment collected from beach, coral/shell  
 Conditions: Overcast, light wind, passing storms in area

S8	Sir Graham Moore Is, WA (Boat)	S 13° 52.61	E 126° 29.07	14-Nov-09	18:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.45/98.3	8.33	30.1	38.8	
10m	na	8.34	30	38.7	

1L water samples taken at above depths  
 Sediment/fauna: Sediment obtained, gray mud  
 Secchi depth: 4 m  
 Conditions: Overcast, light wind

S9	North Eclipse Island, WA (boat)	S 13° 42'37.6"	E 126° 19'38.8"	15-Nov-09	6:30
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Parameters not taken

1L water sample taken at surface (0m) and 10m  
 Sediment: None taken  
 Secchi depth: 9m  
 Conditions: calm, sunny

S10	Suspect area identified by helicopter (Boat)	S 13° 49'21.8"	E 126° 06'13.4"	15-Nov-09	9:45
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment: none taken  
 Small bottle sample with white waxy clumps found in floating algal mat (Sargassum sp)  
 algae mat (Sargassum sp.) sampled, wrapped in foil  
 Secchi depth: 9m  
 Conditions: calm sunny

S10.5	Suspect area identified from boat, WA (boat)	S 14° 03'49.8"	E 126° 53'34.5"	15-Nov-09	11:30
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Parameters not taken, only 200 ml bottle with particles in it.  
 Looked under microscope, most likely algae trycodesmium diatom algae

S11	Hat Point, WA (beach)	S 13.92700	E 125.98434	15-Nov-09	10:06
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach, bivalve tissue sample  
 Conditions: sunny calm

S12	Gibson Point, WA (beach)	S 13.9913	E 125.98434	15-Nov-09	12:14
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach, bivalve tissue sample taken  
 Conditions: sunny calm

S13	Cape Voltaire, WA (beach)	S 14.25930	E 125.58485	15-Nov-09	16:00
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment sample taken, sandy beach with turtle nests  
 Conditions: sunny calm

S14	Bigges Island, WA (boat)	S 14° 32'49.2"	E 125° 05'11.2"	16-Nov-09	6:30
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Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)
0m	7.33/96.1	8.31	30.7	37

1L water samples taken at 0m, 8m  
 Sediment sample not taken, substrate rock, depth 28m  
 Secch depth: 4m  
 Conditions calm sunny, strong tidal current

S15	Cape Brewster, WA (beach)	S 15.11526	E 124.67610	16-Nov-09	9:30
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment taken, sandy beach  
 Conditions: high tide calm sunny

S16	Port George the Fourth, WA (beach)	S 15.29353	E 124.67610	16-Nov-09	10:40
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Parameters not taken

1L water sample taken at surface (0m)  
 Sediment taken, sandy beach  
 Conditions: high tide calm sunny

S17	Montgomery Island, WA (from boat)	S 15° 48'02.3"	E 124° 03'13.0"	16-Nov-09	20:00
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.74/100.3	8.15	29	38.3	
10m	na	8.15	29	38.7	

1L water sample taken at surface (0m) and 10m  
 Depth too deep to take sediment sample (ca 30m+)  
 Conditions: light chop, moderate current

S17.5	Montgomery Island, WA (from helicopter/shore)	S 15.95465	E 124.21360	16-Nov-09	16:05
Parameters not taken					

2x 200ml water sample taken at surface (0m)  
 No sediment  
 Conditions low tide, muddy, windy, mangrove island

S18	Strickland Bay?, WA (beach)	S 16.29788	E 123.56147	17-Nov-09	10:03
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S19	Entrance to King Sound East, WA (from beach)	S 16.65677	E 123.50729	17-Nov-09	11:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S 20	King Sound Entrance, West	S 16.85969	E 123.16286	17-Nov-09	13:50
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, calm on beach, partly cloudy some wind

S 21	One Arm Point, WA (beach)	S 16.35893	E 123.03236	17-Nov-09	15:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: rushing tide, windy, sunny



S 22	Lacepede Islands, WA (boat)	S 16°53'02.6"	E 122° 14'26.2	18-Nov-09	7:30
Depths	DO (ppm/%)	pH (units)	Temp (°C)	Sal (ppt)	
0m	7.65/98.6	8.3	29.2	37.9	
10m	na	8.29	29	38.5	

1L water sample taken at surface (0m) and 10m  
 Sediment: not taken, attempted but too rocky/ coraly  
 Conditions: calm, sunny, moderate current

S 23	Dampier Peninsula Beach, WA (Beach)	S 16.76449	E 122.58679	18-Nov-09	11:00
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: windy, sunny

S 24	Broome Cable Beach, WA (beach)	S 17.938046	E 122.209392	18-Nov-09	14:45
Parameters not taken					

1L water sample taken at surface (0m)  
 Sediment taken, Sandy beach  
 Conditions: windy, sunny

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